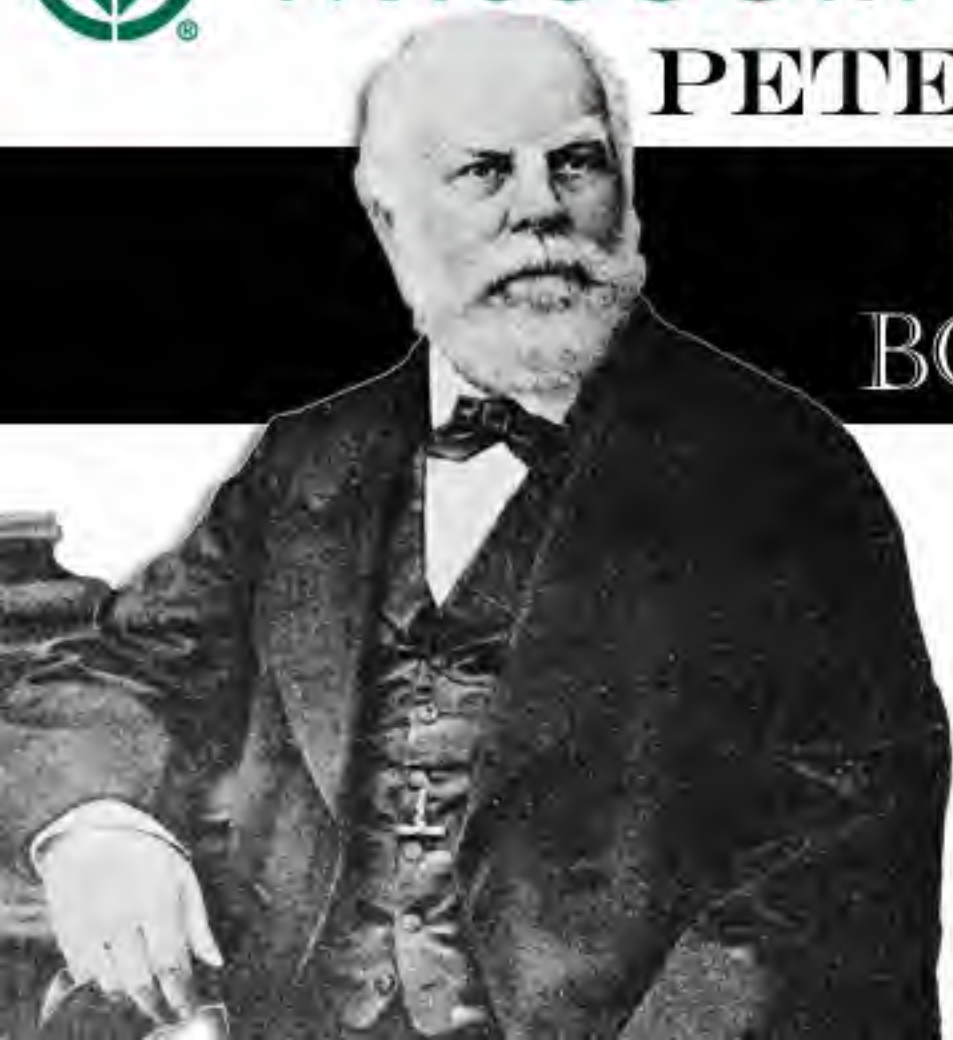


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BOTANICAL NOTEBOOKS



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Pinus inops

609-20

reins zur Beförderung des Gartenbaues, 1860, Nos. 1-52—1861, Nos. 1-6, Berlin, *from the Society*; Atti della Società Ital. di Scienze Nat., Milano, Vol. II., Fasc. 2, 1860, *from the Society*; Atti dell I. R. Istituto Veneto, T. V., Ser. iii., Disp. 10—T. VI., Ser. iii., Disp. 1-3, 1860-1, *from the Society*; Visir-und Recheninstrumente von Ernst Sedlacek, Wien, 1856, — Rechenschleier, von E. Sedlacek, Wien, 1856, — Compendium der ebenen und sfärtschen Trigonometrie von E. Sedlacek, Wien, 1856, *from Mr. Senoner*; L'Ortolano, Giornale Popolare d'Orticultura, Trieste, Anno I. 1-12, III. 1-9, 1859-60, — Allocuzione da Prof. Adolfo Stopice, Trieste, 1860, *from the Society*; Fr. Ambrosii Flora Tirolhæ Australis, Vol. II., Pt. 4, *from the Author*; Verhandl. des Naturh. Vereins, Bonn, Jahrg. XVII., 1-2, 1860, *from the Society*; Sitzungsab. der K. K. Akad. der Wissenschaften, Wien, Band XLII., No. 22-28, 1860, *from the Society*; Nachrichten von der Georg-Augusts-Univ. u. der K. Gesellsch. der Wissensch., Göttingen, 1860, No. 1-29, *from the Society*; Bull. de la Société Linnéenne de Normandie, Vol. V., 1859-60, Caen, 1861, *from the Society*; Mémoires de l'Acad. Imperiale de Metz, Ann. XLI., 1859-60, *from the Academy*; Jahrbücher des Vereins für Naturk. in Nassau, XIV. Heft, Wiesbaden, 1859, *from the Society*; Dr. J. C. Ed. Hoser's Rückblicke, Prag, 1848, von Dr. Weitenweber, — Sitzungsab. der K. böhm. Gesellsch. der Wissenschaften, Prag, 1859, Juli-Dec.—1860, Jan.-Juni, *from the Society*; I. Bericht des Offenbacher Vereins für Naturk., 1860, *from the Society*; Würzburger Medicin. Zeitschrift, II. Band, 1-2 Heft, 1861, *from the Society*; Der Zoologische Garten, von Dr. D. F. Weinland, Jahrg. II., No. 1-6, 1860-61, *from the Editor*; XX. Bericht über das Museum Francisco-Carolinum, Linz, 1860, *from the Institution*; Monatsb. der K. Preuss. Akad. der Wissenschaften, 1860, Berlin, — General Register, 1836-58, Berlin 1860, *from the Academy*; Gelehrte Anzeigen, Vol. 49 & 50, — Sitzungsab. des K. bayer. Akad. der Wissenschaften, 1860, Heft 1-3, München, — Verzeichniss der Mitglieder, 1860, — Bedeutung der Sanskritstudien, von Dr. Wilh. Christ, 1860, — Denkrede auf. Alex. von Humboldt, von C. F. P. von Martius, 1860, — Grenzen und Grenzgebiete der physikalischen Forschung, von Dr. C. F. P. von Martius, 1860, — *from the Royal Academy*; Proben, von Dr. C. F. P. von Martius, 1860, — *from the Academy*.

$pl \frac{47}{30} - \frac{58}{30} = 1.6 - 1.9 \text{ mm diam}$

or probab 1.5 - 2 "

Pollen of northen sp 0.065 - 0.072 mm
— S Carol sp 0.061 - 0.070



0 1 2 3 4 5 6 7 8 9 10
cm

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Dr. Koch presented specimens of quartz and of the silicious conglomerate from Madison County mentioned in Dr. Hilgard's letter.

Dr. Engelmann stated that the mean temperature of July (77.5) had been lower than the usual mean of that month, and that the fall of rain during the same month (2.04 inches) was about one-half less than usual.

Dr. Wislizenus stated that the mean of atmospheric electricity of July had been 3.5° less than that of the month previous, and that the amount had been gradually decreasing since winter.

—
August 19, 1861.

The President, Dr. ENGELMANN, in the chair.

Six members present.

A letter was read from A. F. Bandelier, Jr., Highland, Ill., Aug. 1, 1861, communicating meteorological observations at Highland.

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milian r König
n h Gis



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Pinus inops

May 6 1870

Aiken S. Carolina April 1870



Pollen grains $\frac{25.5 - 29}{415}$ mm

width $\frac{26 - 27}{415}$ mm

$= 0.061 - 0.070$ mm



outside of seed
partly covered
by wing

+10

Seed (inside) rough
but not ridged



8.5 cm



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cm

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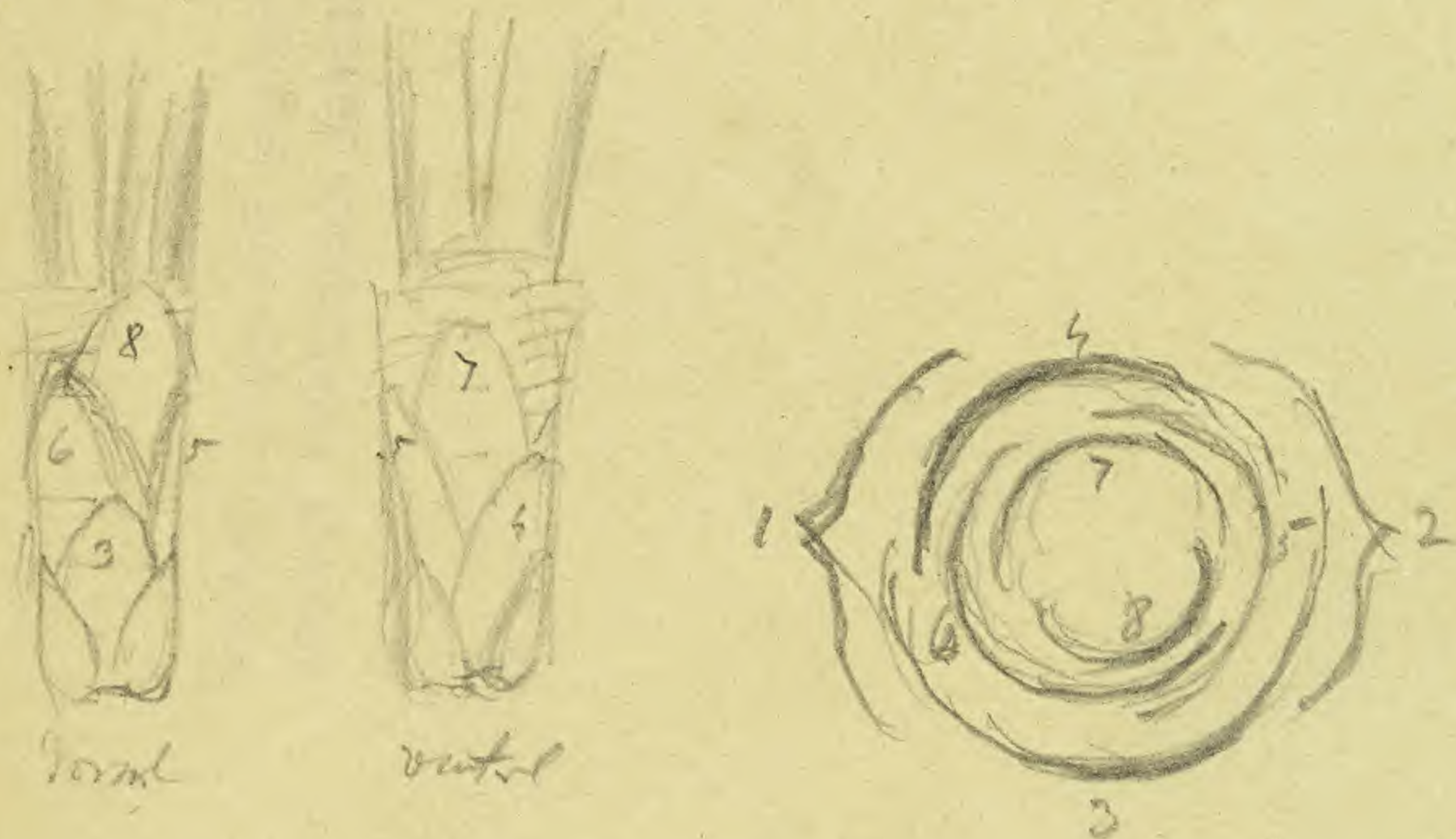
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Pinus inops

May 22 1875

Pennsylvania

x4



young shoots of leaf

bract in vigorous shoots often persistent

otherwise of different length.

more or less persistent



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Pianus inops

May 9 1877

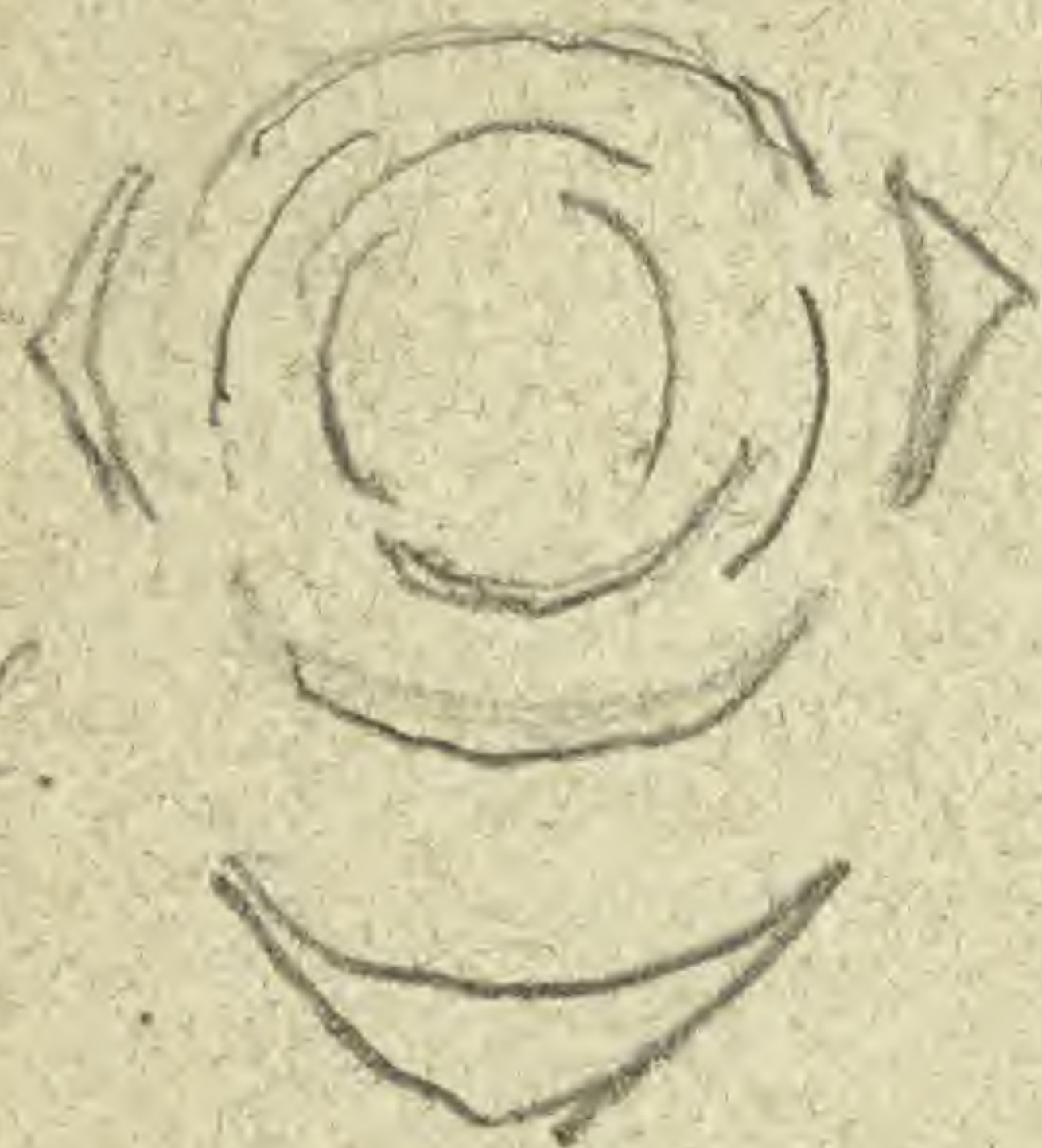
Hb. Mission

May 8 1877

frank

not in full bloom yet

10 invol.
scales



x 4

anthers in 5 somewhat
oblique lines



x 10

Pollen x 415

$$\frac{31-33}{415} = 0.075 - 0.080 \text{ mm}$$

coronate Petaloid scales
half as long as the
inner ones



0 1 2 3 4 5 6 7 8 9 10

cm

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0075 0080

415 / 3100 3200
2405 3220
1950

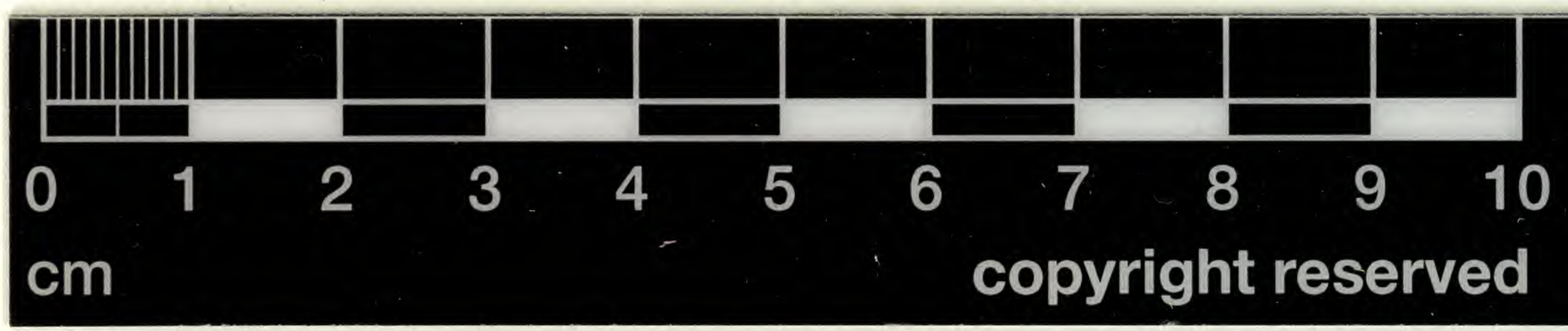
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CHEMIST

ALEX. LEITCH,
APOTHECARY & CHEMIST,
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ALL THE NEW REMEDIES
CONSTANTLY ON HAND



Pinops

May 19 1872

x 30

Aiken, Annual



x 60

Ducts parenchymatous
lateral, and often accessory
ones above, rarely
below.

no hypoderm on lateral
very scanty under
surface

upper surface of leaf often
grooved or keeled.



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APOTHECARY,

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No. 187

Date,

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Geo. Engelmann, M. D.,

No. 3003 Locust Street,

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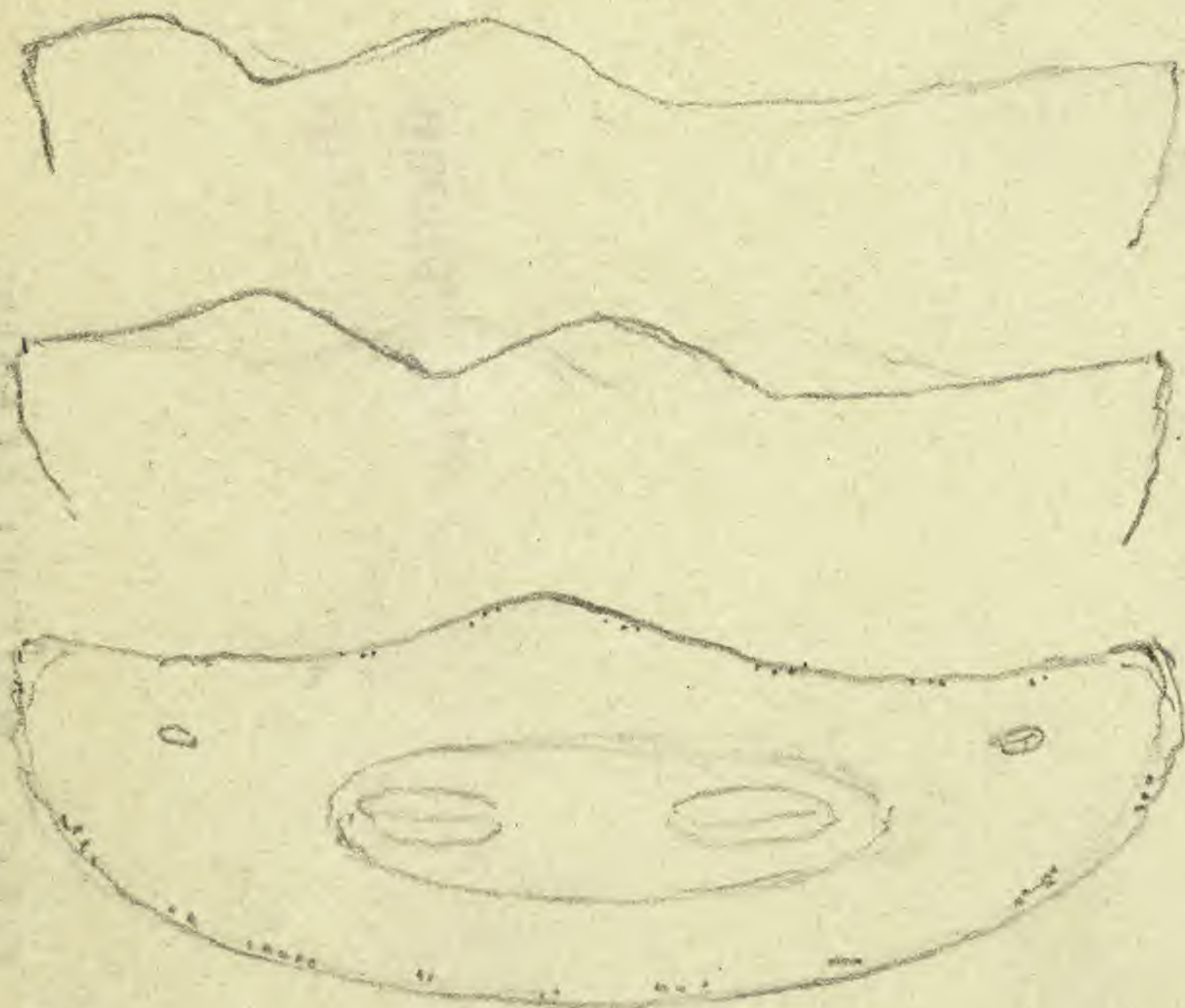
large leaf 1.9 mm wide

P. inops

May 19 1878

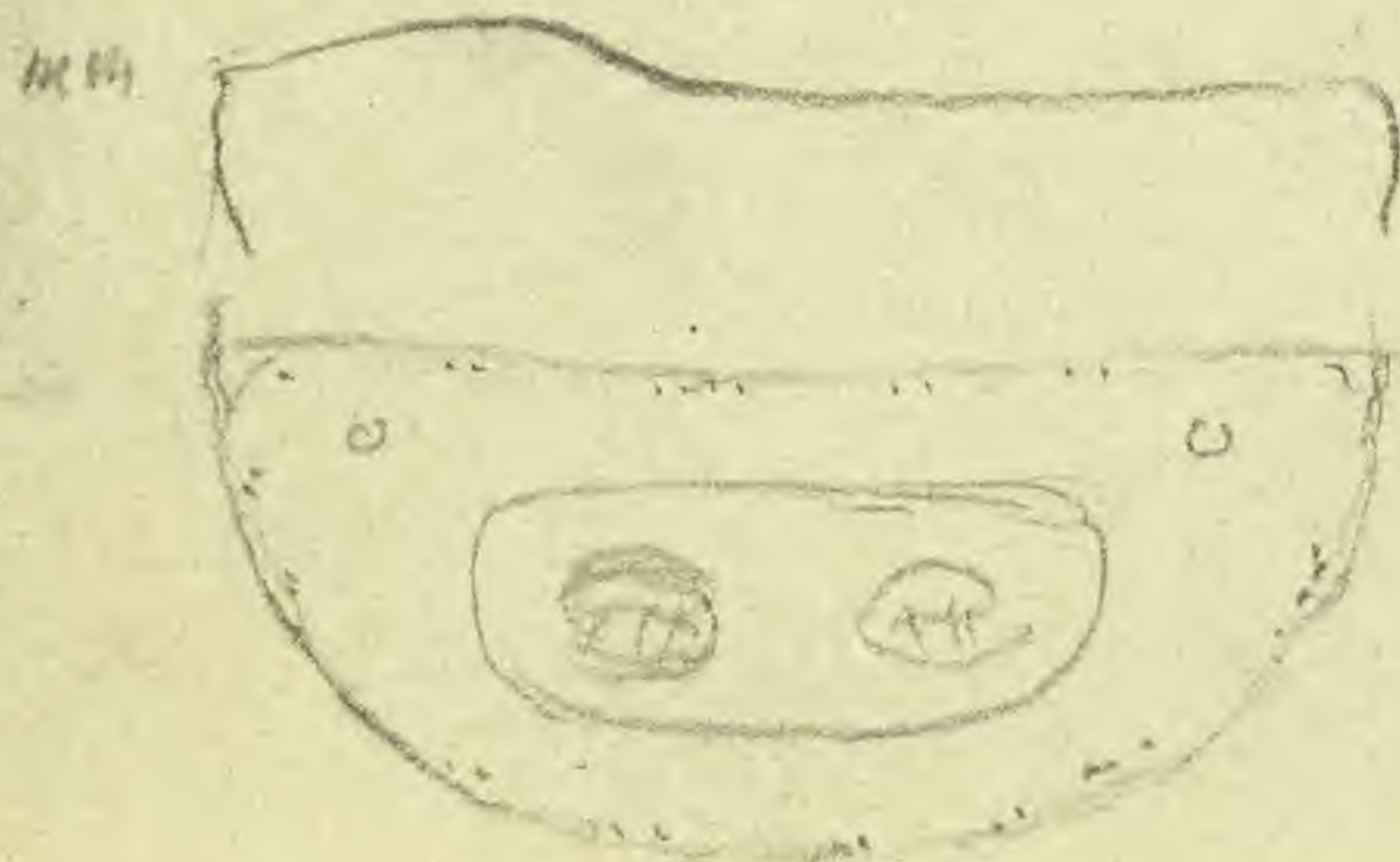
upper side often keeled, or even
2-bridged Germantown, Meacham

x30



smaller

leaf 1.2 mm
wide



x60



ducts small, very weak hypodermis incomplete
around them (much like *Banksia*)
hypodermis in detached ^{interrupted} layers above & below
feebly developed.



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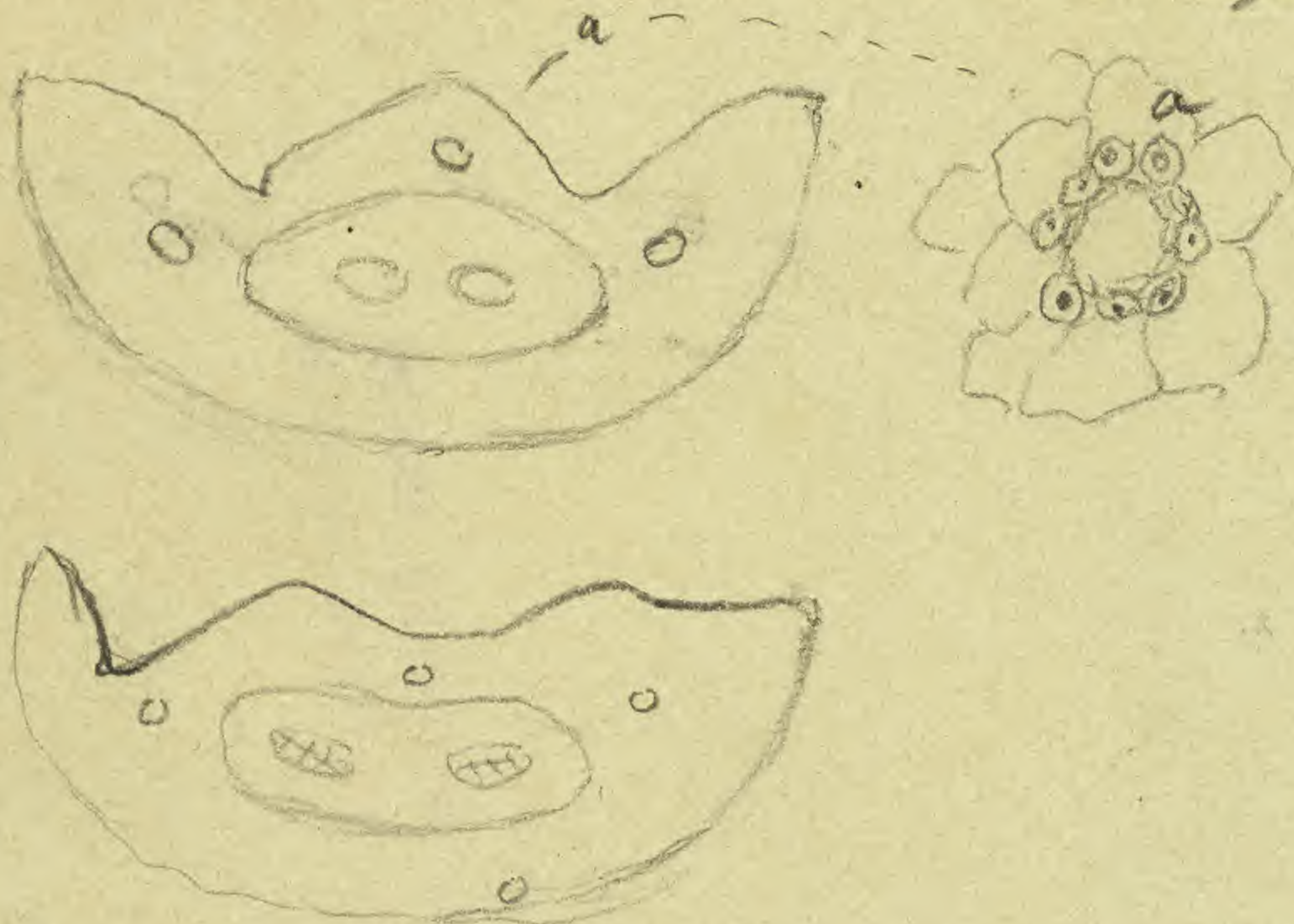
May 19 1878

Pin inops

Chattanooga

Aug 1876

x 30



x 60



perigynal ducts
below

leaves very often folded or
ridged - hypodermis interrupted
on lower side, scarcely any on upper side
ducts often 3, parenchymatous, surrounded by
(sometimes incomplete) hypodermis cells - rarely 1 or 2



0 1 2 3 4 5 6 7 8 9 10

cm

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P. inops

May 19 1878

Terna

between Washington & Bellinore

GE

x20



no hypoderm
on ducts, very sparing under epiderm

x60



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cm

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P. insipida

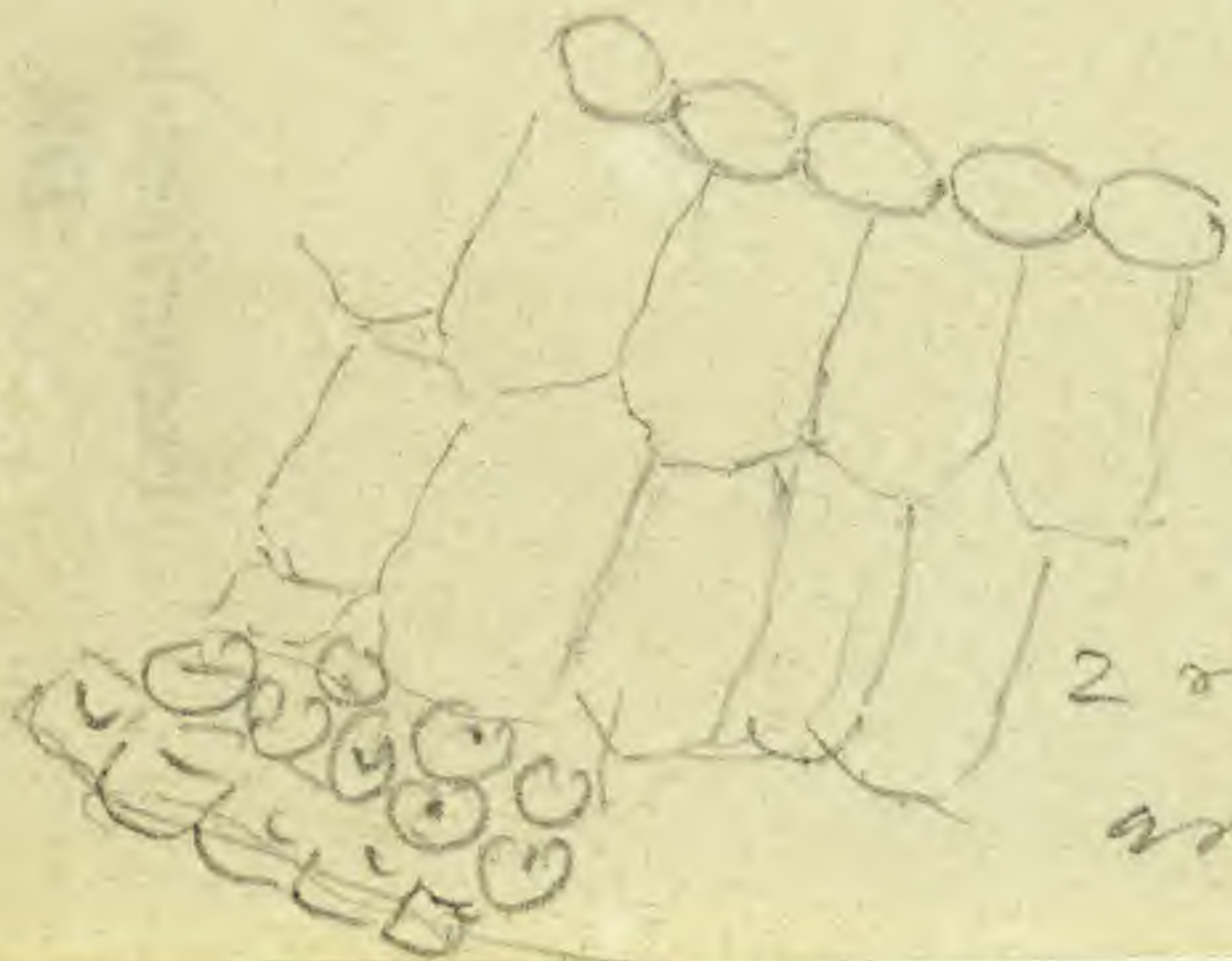
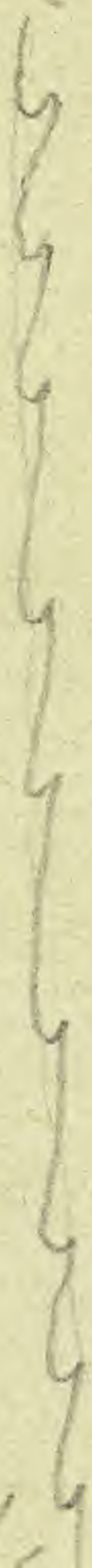
July 25 1878

fertile, Hobbs mission May 1878 (fresh & glycerine)

x 30



x 60



2 regular layers of parenchyma cells
around sheath



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cm

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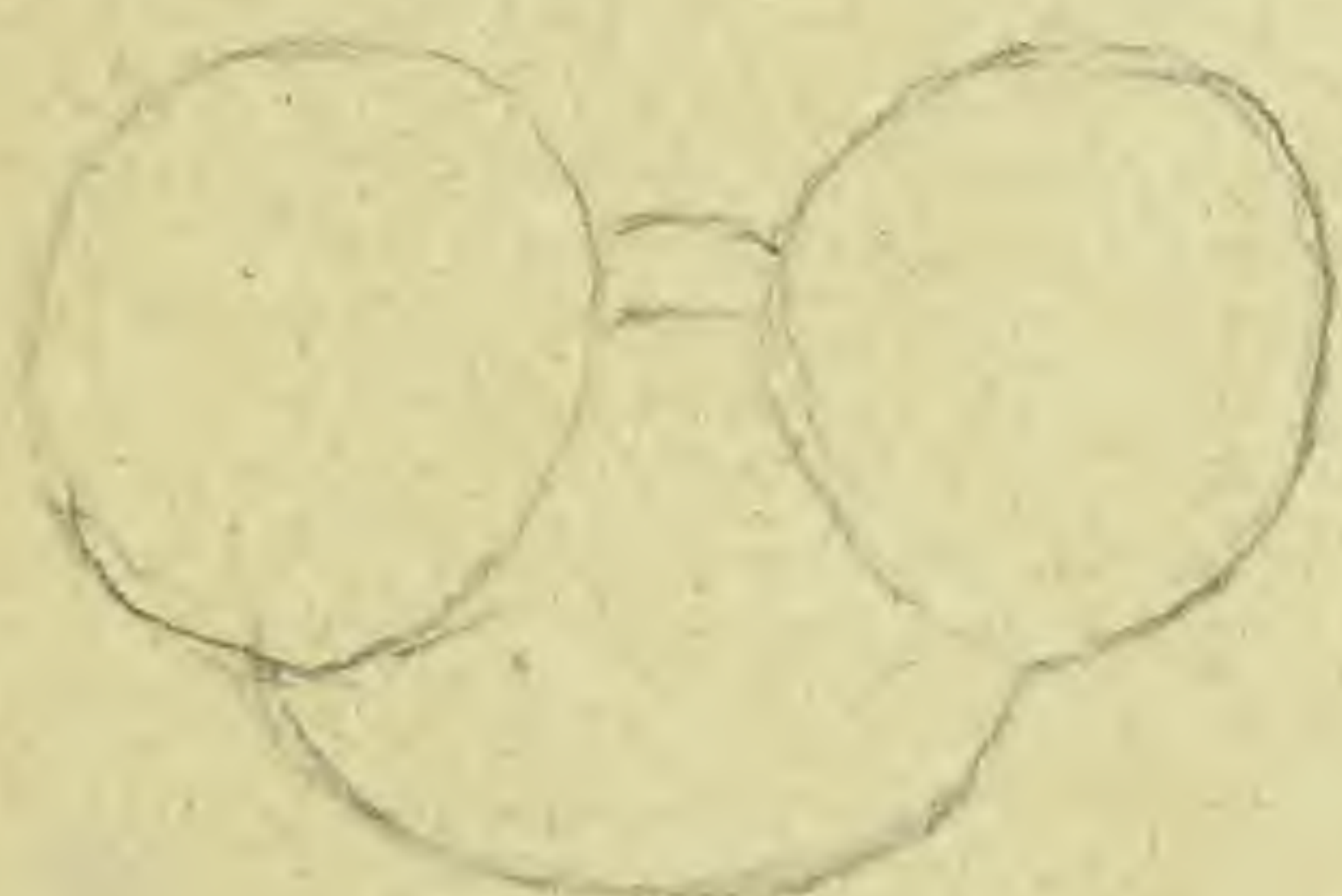
Pinus inops Delaware Co Pa

June 1865

"
0.031
0.065 mm



0.033



0.035
0.072



"
0.041



x4



interior
or ventral



exterior
or dorsal

arista of anther 15-18
or w 2.0 mm
anther same length wide



arista of anther
undulate, not
crenate or
scarcely so



8 (-9)
involucel
bracts

over

This grain probably belongs to *Pinus*
which came with *P. inops*.



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cm

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SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,

ST. LOUIS.

13-14 bracts of vag. *na*, obtuse, short, *na* on
scars and *na*, whole sheath 3 l. long,
after the first season reduce to 2 or 1 l.
young branches glaucous, smooth
pendae (bracts of leafbunches) abt 2 l. long
upper $\frac{2}{3}$ early deciduous

leaves = $\frac{8}{13}$ ~ $\frac{5}{8}$

415 | 240030
 2490

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65

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Leaves of
fruit bearing plant

Pinus inops Chadsford Pa

July 5 1863

Staminate plant or branch

x30



sect. of dry
leaf

x30



x60

sect. of
dry leaf

x60

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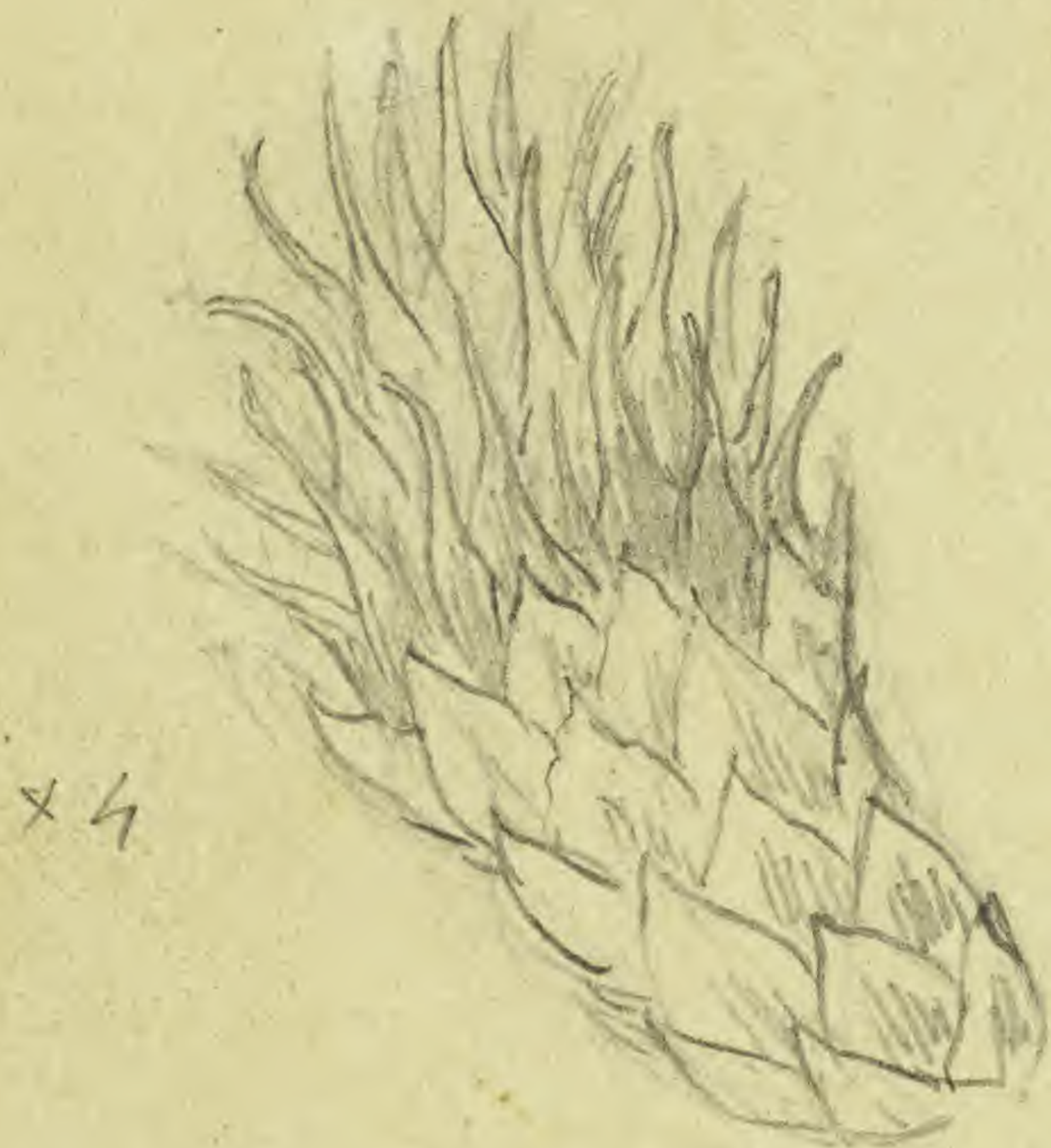
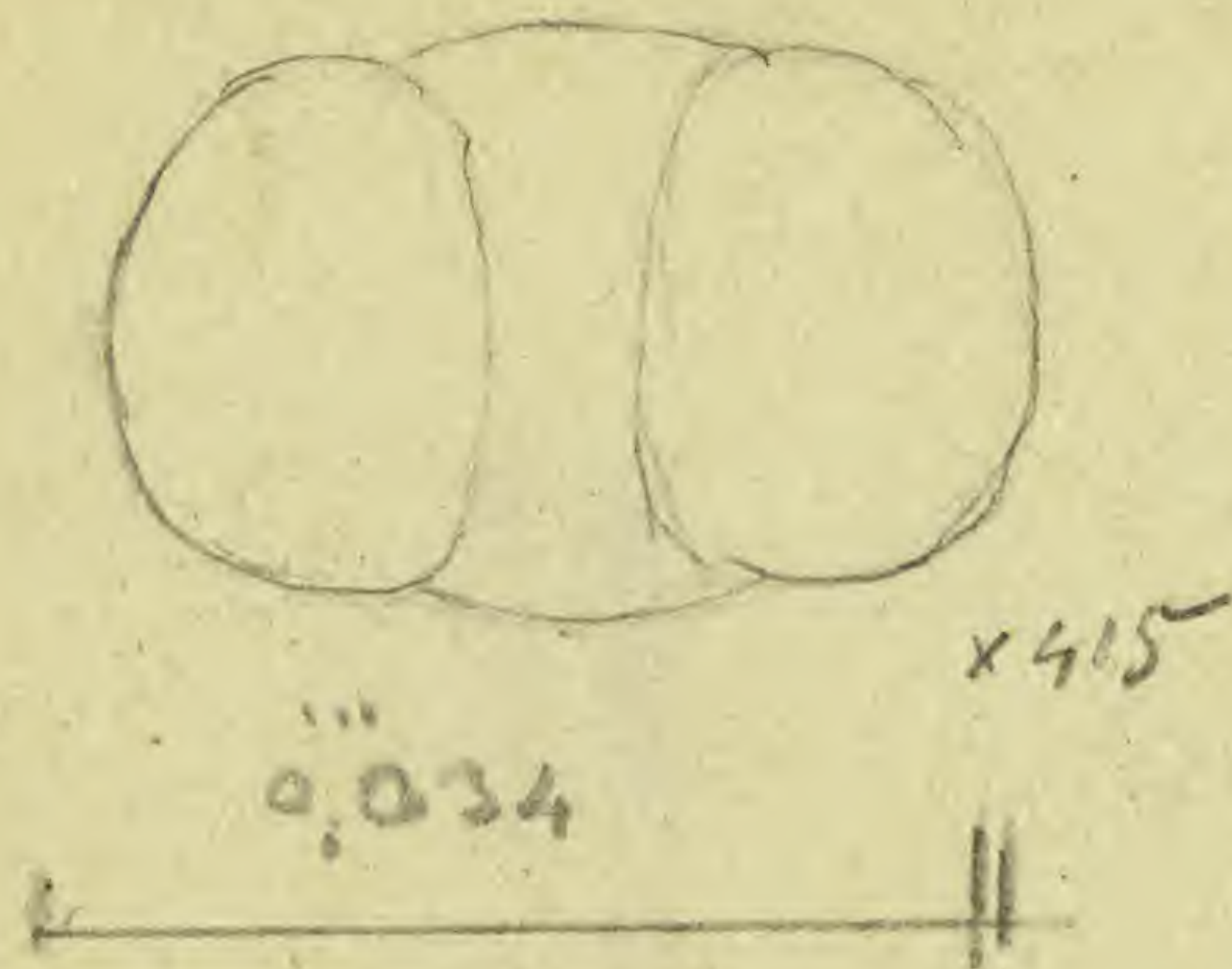
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Pinus inops Charleston, Del.

May 31 1853



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1420 34
1245
1850
1660
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Pennisetum

Maryland Aug. 1855

x 10



6 Cotyledon



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